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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/923,394 | 08/08/2001 | Koki Hirasawa | NU-01011 | 2347 |

466 7590 11/25/2003

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| EXAMINER |
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ERDEM, FAZLI

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| ART UNIT | PAPER NUMBER |
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2826

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,394

Applicant(s)

HIRASAWA ET AL.

Examiner

Fazli Erdem

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Woolverton (5,519,596) further in view of Go et al. (6,008,528) further in view of Kusuda et al. (5,245,198).

Regarding Claims 1-10, Woolverton discloses a moldable nesting frame for light emitting diode array where a module comprised of plurality of light emitting diode lamps or other light emitting devices and a metal nesting frame with flexible joints between each row of LED bus bars is described. The flexible joint between the rows of LED bus bars allows the module to be assemble flat, which eases its manufacture. After the LED lamps have been mounted on the nesting frame, the flexible joints allow the module to be formed to fit withing or on a complex three dimensional space. Woolverton fails to disclose the required tiebar structure and the physical characteristics of the tiebar structure. However, Go et al. (6,008,528) disclose a semiconductor lead frame with channel beam tie bar where the required tiebar structure is disclosed. Furthermore, Kusuda et al. disclose an optoelectronic device metal mold for manufacturing the device and manufacturing the method of the device using the metal mold where the required physical characteristics of the tiebar structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required tiebar and the required tiebar physical characteristics in Woolverton, as taught by Go et al. (6,008,528) and Kusuda et al. (5,245,198) respectively in order to have a semiconductor device with better reliability.

2. Claims 11-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Woolverton (5,519,596) further in view of Go et al. (6,008,528) further in view of Williams et al. (6,307,755).

Regarding Claims 11-14, Woolverton fail to disclose the required lead structure and the positioning structure. However, Go et al. (6,008,528) disclose a semiconductor lead frame with channel beam tie bar where the required lead structure is disclosed. Williams et al. disclose a surface mount semiconductor package, die-leadframe combination and leadframe therefore and method of mounting leadframes to surfaces of semiconductor die where the required positioning structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required lead and positioning structure in Woolverton as taught by Go et al. and Williams et al. in order to have a semiconductor device with better reliability

3. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolverton (5,519,596) in view of Mizuuchi (6,194,238) further in view of Kelleher et al (5,734,197).

Regarding Claims 15 and 17, Woolverton fails to disclose the method of manufacturing a photocoupling device including the lead forming and sealing steps and the deformable bar structure. However, Mizuuchi shows a method of manufacturing a photocoupling device including the lead forming and sealing steps. Furthermore, However, Kelleher et al. show a deformable leadframe.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to have deformable bars in Woolverton and Mizuuchi combination as taught by Kelleher et al. because such structure would result in protection for the outer leads.

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woolverton (5,519,596) in view of Mizuuchi (6,194,238) further in view of Kelleher et al. (5,734,197) further in view of Go (6,377,742).

In combination Woolverton, Mizuuchi and Kelleher show a leadframe to be used with a photocoupling device and the related method of making the leadframe. They fail to show an outer frame with positioning holes. However, Go shows a leadframe to be used with an optical module including positioning holes as shown in Fig. 9.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include positioning holes on outer frame in Woolverton, Mizuuchi and Kelleher et al. combination as taught by Go, because that would lead to faster manufacture.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE
November 16, 2003


NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2030